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134

Working  
McCall Oil

February 4, 2010

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FEB 05 2010

Re: Response to DEQ comments on McCall Oil and Chemical Corporation (MOCC)  
Remedial Investigation (RI) and Source Control Evaluation (SCE) Reports

Dear Jim:

Following up on our meeting with you and Tom Gainer on November 9, we are submitting written responses to DEQ comments on the above-referenced RI and SCE reports for the MOCC Site. DEQ's original comments are reprinted below, followed by our response in blue italics. After you have a chance to review our responses, we would like to schedule a follow-up meeting with you to discuss a reasonable path forward to finalize the RI and SCE reports and proceed to a Source Control Decision for this Site.

#### General Comments

1. The data presented in the RI/SCE reports indicate data gaps in the SCE. In order to evaluate the site using the Portland Harbor Joint Source Control Strategy (JSCS) and DEQ's Guidance for Evaluating the Stormwater Pathway at Upland Sites, additional information is required before DEQ can support a SCD for the McCall site.

*General Response. We have a number of disagreements with DEQ about how the source control screening process should be implemented and specifically regarding the appropriate use and application of SLVs. In reality, the screening analysis is of limited use because there is not a developed drainage area in the City of Portland, including residential areas, that*

would be able to pass the SLVs. Many of the SLVs are based on unrealistic exposure scenarios and misapplication of water quality criteria, as detailed in the comment responses later in this letter. For that reason the conclusion of the screening analysis is predetermined; no matter how it is performed, all sites will fail. We must therefore move beyond the screening step into a weight-of-evidence evaluation; this is necessary to allow sound science to be considered in the evaluation.

DEQ acknowledges this fact in the 2009 Stormwater Guidance (p. 8):

*"...exceedances of SLVs do not necessarily indicate that stormwater discharges from the site cause or contribute to unacceptable risk to human health or the environment. It's possible that the exceedances simply reflect the conservative nature of the SLVs used in this guidance rather than the inadequacy of stormwater SCMs and BMPs. The challenge, therefore, is to determine when source control has been achieved in spite of SLV exceedances. This will typically involve the consideration of several lines of evidence."*

2. PCBs were detected in the three stormwater sediment samples ranging from 30 ppb to 144 ppb. The detection of PCBs requires further investigation. Additional sediment and stormwater sample collection is recommended to evaluate potential PCB sources and complete the SCE.

*We disagree that PCBs require further investigation, based on the following data:*

- *Although PCBs were detected in MOCC storm sediments, they are consistent with the ubiquitous nature of PCBs in urban storm sediments (urban background) and do not represent a unique site-related source.*
- *MOCC PCB concentrations in storm sediments (30 to 140 µg/kg) are similar or lower than concentrations routinely detected in less impacted land uses, such as light industrial (mean = 463), transportation (mean = 163), mixed land use (mean = 232), and residential (mean = 222). See attached Table 1B.*
- *In terms of mass loadings of PCBs to the Portland Harbor, the McCall site is therefore insignificant.*

3. The Contaminants of Interests (COIs) list should be revised to include all potential contaminants for the site. The following list of constituents should be considered in future site screening for all pathways: Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethyl benzene, Xylenes (BTEX), Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Zinc), Organochlorine Pesticides, PCBs, Polynuclear Aromatic Hydrocarbons (PAHs) Chlorinated Volatiles, and Semi-Volatiles (including SLV listed Phthalates). The complete list of phthalates, organochlorine pesticides (including DDT), and PCBs are

considered COIs based on analytical results of river sediments samples, site history, and onsite stormwater/sediment sampling detections.

*The COI list for stormwater and storm sediment was previously outlined in the Anchor Work Plan dated February 2, 2007, as modified by our letter of April 9 and approved by DEQ on April 16, 2007. Site history and operations, sediment quality in the adjacent river, and results of previous investigations were already considered in developing the Site COI list. As a result, stormwater and storm sediment have already been analyzed for the full list of metals, PAHs, TPH, target SVOCs, including phthalates, and PCBs. Further analysis and expansion of the COI list is technically unsupported, as discussed below.*

PCBs. See previous response.

Bis[2-ethylhexyl]phthalate (DEHP).

- *Although DEHP was detected in McCall storm sediments, it is consistent with the ubiquitous nature of DEHP in urban storm sediments (urban background) and does not represent a unique site-related source. The Phthalate Work Group (EPA, Ecology, and Washington Phase 1 municipalities) recently concluded that much of the DEHP in urban stormwater is likely derived from volatilization of vinyl products, pervasively used for a multitude of indoor and outdoor applications in all types of buildings.*
- *McCall DEHP in storm sediment (mean = 9,900 µg/kg) is similar or lower than concentrations routinely detected in less impacted land uses, such as light industrial (mean = 22,500), transportation (mean = 29,000), mixed land use (mean = 9,800), and residential (mean = 8,200). See attached Table 1B.*
- *The source of the JSCS SLVs for phthalates in sediment are undocumented. The JSCS references the DEQ Bioaccumulation Guidance but that is an inaccurate reference because phthalates are not included in that guidance.*
- *In terms of mass loadings of DEHP to the Portland Harbor, the McCall site is insignificant.*

Chlorinated pesticides.

- *Site history and operations were carefully reviewed as part of the RI and earlier site assessment work. There is no evidence or reason to believe that chlorinated pesticides were handled at this Site. In particular, DDT was banned from use in 1973, whereas the first chemical facility at the Site (Chemax) did not begin operations until 1984 (Emcon Northwest, Preliminary Assessment, 1994).*
- *The only detections of DDTs and PCBs of any significance are in the buried river sediments (i.e. legacy contamination) in LWG Core C-413 near the upstream property boundary of the Site. This sample is directly adjacent to an abandoned City stormwater*

*outfall, which is the logical source of the contamination. The contamination is localized near the mouth of the former City outfall and unrelated to sediment quality on other parts of the MOCC waterfront.*

*BTEX and Chlorinated VOCs.*

- *BTEX was analyzed in over 100 upland groundwater samples and was detected in only a few percent of the samples, and never above RBCs. The main detections of BTEX were in MW-11, in the vicinity of a localized LNAPL plume derived from an off-site source. Outside of MW-11, the rare detections of BTEX compounds are orders of magnitude less than bioaccumulation and tap water SLVs.*
  - *Gasoline did not exceed any RBCs in the Upland RI. Gasoline is the most common source of BTEX constituents, but there is no evidence that gasoline is present at levels of concern at the Site.*
  - *Chlorinated VOCs are legacy chemicals present in Site groundwater; however, the storm drain system is elevated well above the water table, so there is no viable pathway for chlorinated VOCs to infiltrate the storm drain system.*
  - *Neither BTEX nor any other VOCs were analyzed in LWG stormwater, so clearly this was not considered a pathway of concern for these constituents in Portland Harbor. Thus, there is no technical justification to analyze BTEX or other VOCs in MOCC stormwater.*
4. The characterization of bank surface soils did not include testing for all site COIs. It was limited to analytical testing for Arsenic, Chromium, Copper, Polynuclear Aromatic Hydrocarbons (PAHs), Semivolatiles (including four Phthalates), and TPH as Gas, Diesel, and Oil. The following additional constituents should be included in future site screening: Metals (Cadmium, Lead, Manganese, Mercury, Nickel, Silver, Zinc), Organochlorine Pesticides, PCBs, and Semi-Volatiles (including SLV listed Phthalates). Further investigation and evaluation of erodible river bank soil with the full COIs list is required to complete the SCE.

*The COI list for site surface soil was previously established in the approved MOCC RI Work Plan (IT Corporation, 2000) based on Site history and operations, sediment quality in the adjacent river, and results of previous investigations. As a result, bank surface soils have already been analyzed for target metals (copper, chromium, arsenic), PAHs, target SVOCs, including phthalates, and TPH. No bank surface soil samples exceeded any of the ecological or human health screening levels for any of these COIs. Further analysis and expansion of the COI list for bank soil is therefore technically unjustified. See also response to previous comment.*

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5. Because of the designation of sediment adjacent to the McCall site as an Area of Potential Concern (AOPC), EPA and the Lower Willamette Group may consider sediment adjacent to the McCall Site to be contaminated with hazardous substances at levels requiring remediation. DEQ does not support the SCE's method of comparison of LWG's near-site sediment data with area wide Portland Harbor sediment mean concentrations for determining whether releases of hazardous substances from this facility poses unacceptable risks or requires source control. It is not clear which sites were included in the calculation of the mean concentrations for a Portland Harbor Heavy Industrial Sites but the rationale for this comparison may be flawed. Many of the Heavy Industrial sites were selected for sampling by the LWG because they were not expected to represent a "typical" uncontaminated Heavy Industrial site and thus could skew the mean concentration trends. DEQ requires that individual samples to be screened against JSCS SLVs and evaluated based on the frequency and magnitude of exceedences.

*This comment alleges that the sediment evaluation and stormwater evaluation in the SC Report are unsupported. We disagree, for the reasons cited below.*

*Sediment Evaluation.*

- The weight-of-evidence analysis in DEQ's Stormwater Guidance includes determining whether "Other lines of evidence indicate discharges likely to have unacceptable impact on receiving water body" (DEQ 2009, Figure 2). The Guidance recommends evaluating spatial gradients in sediments near outfalls and on the banks of the Site (p. 3). This is exactly the approach taken in the SC Report.*
  - Sediment concentrations adjacent to MOCC are among the lowest in this one-mile reach of the river, compared with samples one-half mile upstream and one-half mile downstream of the Site (Table 3a, Appendix B).*
  - Major sources of contamination (Gunderson, City Fire Dock, and Arkema) are located outside of this one-mile reach. Thus, these major sources were excluded from the statistical calculations presented in the SC Report, even though they may exert a regional influence on contaminant levels in this reach of the river. The mean Portland Harbor sediment concentrations were reported to provide a more global context.*
  - MOCC was not an AOPC in the original LWG analysis. It was only added later after EPA reconfigured the AOPC boundaries. The primary reason for including MOCC in the expanded AOPC appears to be due to the subsurface enrichments of PCBs and DDTs adjacent to the abandoned City outfall at the upstream property boundary, which is unrelated to Site activities.*
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Stormwater Evaluation.

- *The weight-of-evidence approach described in DEQ Stormwater Guidance includes comparisons between Site stormwater and storm sediment with “data from comparable sites” (DEQ 2009).*
  - *The Guidance states: “Because of its work in Portland Harbor and Columbia Slough, DEQ’s Northwest Region is amassing a body of stormwater and catch basin sediment data from upland sites that may help with the data screening interpretation (Ibid., p. 10). Thus, our evaluation of Portland Harbor data is fully consistent with the Guidance, and an expected part of the evaluation.*
  - *DEQ is concerned about which sites were included in the Portland Harbor Heavy Industrial data set. However, MOCC stormwater and storm sediment quality are similar to much less impacted land uses, including light industrial, mixed land use, and even residential land use in some instances (See attached Tables 1A and 1B).*
6. The SCE used mean concentrations for screening. DEQ requires screening to be done using the maximum reported concentration or the 90% Upper Confidence Level (UCL) of the mean if applicable data are available.

*See Response to General Comment #7, below. The 90% UCL for stormwater and storm sediment data cannot be reliably calculated due to the limited number of samples (i.e. four stormwater samples) required by DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites (2009) and the inherently high variability of chemical concentrations in stormwater.*

7. Individual stormwater and stormwater solids sampling results should be screened in the SCE uniquely for each basin or individual sampling point. Analytical testing should include the full COIs analytical list.

*We believe DEQ’s General Comments #6 and #7 are based on an inappropriate application of water quality standards, and are contrary to federal and State guidance, as detailed below.*

- *DEQ Guidance recommends using average stormwater concentrations (p. 16), because of the inherent variability of stormwater, not “extreme” concentrations. The maximum stormwater concentration, which DEQ appears to be requiring for MOCC site screening, is the most “extreme” concentration possible, and thus contrary to DEQ Guidance.*
  - *Screening of individual (or maximum) stormwater results from individual locations against tap water or fish ingestion criteria is a mis-application of these water quality standards. These standards must consider appropriate temporal and spatial scales of exposure, as outlined in federal guidance (EPA 2005 and 2009; see below).*
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- *Temporal Averaging (Lifetime Cancer Exposure)*. Cancer risk is the basis for a majority of the human health screening levels (i.e., fish ingestion and tap water). Comparing the analytical result from a storm event lasting a few hours or at most a few days with a 70-year lifetime cancer risk is inappropriate. EPA guidance states that Human Health WQC for carcinogens should have a duration (i.e., an averaging period) of a year or more (EPA 2005, p. 42). This is the “duration” component of the WQS.
- *Spatial Averaging (Home Range and Harvesting Area)*. For fish ingestion criteria, the home range of the fish must be determined or estimated, and sediment and/or water concentrations should be averaged over this exposure area to provide a spatially representative exposure concentration (EPA 2009). In addition, upper-level receptors, including humans, will generally harvest fish from a range of locations in the river. In these respects the JSCS screening process is inconsistent with federal guidance and scientific principles by assuming fish spend their entire lives in the storm drains, and 2.7 pounds of fish per week are consumed per person from the storm drains.
- *If the use of appropriate spatial and temporal averaging is not allowed during the initial screening process, it must at least be considered in the weight-of-evidence evaluation to be consistent with federal guidance as well as the basis and intent of human health water quality criteria.*

#### Specific Comments-Remedial Investigation Report

1. Page 21, 4<sup>th</sup> Paragraph-Portland Harbor baseline sediment concentrations comparison to sediment concentrations is not supported by DEQ (See General Comment #5). The exclusion of constituents detected in river sediment that are not expected to be onsite is not warranted. The presence of the AOPC contaminants adjacent to the site may indicate an unknown source on the site unless determined by onsite data to not be a COIs. Further evaluation is needed to demonstrate complete contaminant migration pathways from upland sources to the river are not complete or are protective of the river (i.e., as described in the JSCS).

*The page citation for this comment does not appear to be correct, so we can't fully evaluate the context of the comment. In general, however, there needs to be more than simple “detection” of constituents in river sediment to launch a source control investigation. The nature and extent of sediment concentrations, toxicity tests, and other relevant data in the river should provide evidence of localized inputs that are impacting the river and linked to potential on-site sources/operations in order to justify a source control investigation. A thorough review of Site history and operations was provided in the approved MOCC RI*

*Work Plan (IT Corp., 2000; Appendix D) which was used to help focus Site investigations on viable potential sources and COIs.*

2. Page 24-Chlorinated VOCs, TPH, and BETX COIs were evaluated for upland risk but were not included in the SCE. These constituents should be included in the SCE.

*See response to General Comment #3 (BTEX) and SC Comment #5.*

*The pathway of concern for chlorinated VOCs is the groundwater to surface water pathway, which is evaluated in SCE Table 6. Chlorinated VOCs are not COIs for stormwater because:*

- *Chlorinated VOCs are legacy chemicals that are no longer handled at the site. MOCC conducts annual cleaning of all stormwater catch basins (see SCE Section 5.6.1), so any residual chlorinated VOCs that may have been present historically would have long since been removed from the system.*
- *Chlorinated VOCs from legacy operations are present in Site groundwater, as detailed in the RI Report. In the vicinity of the VOC plume, the groundwater table is about 12 to 20 feet below grade, whereas the storm drains are about 5 feet below grade. As a result, there is no viable pathway for chlorinated VOCs in the groundwater plume to infiltrate the storm drains.*
- *Chlorinated VOCs and BTEX are not constituents of concern in Portland Harbor stormwater and were not analyzed in the LWG investigation.*

3. Page 29-The evaluation of bank soil contamination concentrations to SLVs was performed for only TPH constituents. Bank soils should be evaluated for the full COIs list of constituents then compared to SLVs (See General Comment #4).

*See response to General Comments #2 and #3.*

4. Page 43, Section 4.6-The section states that risk screening was performed to determine if key contaminant exposure pathways to upland receptors have been sufficiently characterized to support the evaluation of upland SCMs. The SCE only determines if constituents are reaching the river and require SCMs. The evaluation of exposure to upland receptors is a separate analysis.

*DEQ's statement is correct. This was the report organization that was agreed to in our last meeting with DEQ (with Tom Gainer) before the RI and SCE Reports were issued.*

5. Page 46, Section 4.6.2-The evaluation of construction worker exposure is not considered a "worst-case" scenario, but should be properly referred as a "reasonable
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maximum future exposure scenario". The RBCs for total PCBs should be applied to PCB Aroclors. This will allow screening of pathways not included in EPA's Region 6 Tables.

*The requested changes will be made.*

6. Currently there are EPA regional screening levels that supersede the EPA Region 6 Table ([http://www.epa.gov/reg3hscd/risk/human/rb-concentration\\_table/](http://www.epa.gov/reg3hscd/risk/human/rb-concentration_table/)). This information was not available during the preparation of the report but should be considered in future submittals.

*We understand that Region 6 screening levels have been superseded, and the new values will be incorporated into the next submittal. Please note, however, that the EPA screening levels are a moving target and are constantly being revised, and we have already expended significant resources updating the screening level tables each time a new draft of the RI Report is prepared.*

7. Table 8a-The RBCs for construction/excavation workers are incorrect due to a unit conversion error in the DEQ spreadsheet. The correct value is 1,000 times the reported values and therefore the site concentrations are below the RBCs. This error has been corrected in the current DEQ spreadsheet.

*Comment noted.*

8. Table 10a-Screening values for methyl-naphthalene can be obtained from the EPA screening table ([http://www.epa.gov/reg3hscd/risk/human/rb-concentration\\_table/](http://www.epa.gov/reg3hscd/risk/human/rb-concentration_table/)) or a site specific value may be developed for each relevant exposure pathway.

*Comment noted.*

9. Table 10b-PCBs were sampled in three of the four catch basins and were present in moderately elevated concentrations at S-1 and S-3. Additional sampling is needed to characterize the source or sources of PCBs at the site in order to support the evaluation and determine whether SCMs are needed. If future PCB sampling analysis of site sediments and stormwater indicate a significant source (significant exceedences of SLV) then SCMs will be considered.

*See Response to General Comment #2, as well as attached Tables 1A and 1B. We disagree that PCB concentrations are "moderately elevated" in site catch basins. MOCC PCBs are*

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*typical of urban runoff; there is no evidence to indicate a significant source of PCBs at this site.*

#### Specific Comments-Source Control Evaluation Report

1. Page 10-COIs-Several chemicals were omitted without sufficient justification. In particular, PCBs are known site COIs that have not been sufficiently evaluated.

*See Response to General Comments #2 and #3. PCB concentrations at MOCC are no different than typical urban stormwater and should not be a Site COI.*

2. Page 15-The report concludes that the site is not considered a source to the river due to the comparison of near-site sediment data with harbor mean concentrations (Appendix B). This screening method is not supported by DEQ. (See General Comment #5).

*See Response to General Comment #5.*

3. Page 21- The risk screening evaluation process should be consistent with the Portland Harbor JSCS methods. The use of a site wide average is not considered a valid screening approach by DEQ.

*See Response to General Comments #6 and #7.*

4. Page 25-EPA's determination to use the benzo[a]pyrene SLV as a surrogate for other PAHs is the accepted screening value (See General Comment #6).

*The application of the benzo(a)pyrene MCL to noncarcinogenic PAHs which are many orders of magnitude less toxic than benzo(a)pyrene is technically unjustified. Moreover, it is arbitrary. It was clearly EPA's intent to apply this MCL specifically to benzo(a)pyrene and not to other PAHs, and especially not noncarcinogenic PAHs, as evident in the supporting factsheet: [http://www.epa.gov/ogwdw000/contaminants/dw\\_contamfs/benzopyr.html](http://www.epa.gov/ogwdw000/contaminants/dw_contamfs/benzopyr.html) The relative toxicities of the PAHs, which are well documented in the literature, must at least be considered in the weight of evidence evaluation.*

5. Page 25-DEQ does not concur with the statement that "By complying with NPDES permit limits for oil and grease, it is assumed that petroleum compounds are not causing adverse impacts to the river". Stormwater permits do not necessary protect
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against all exposures identified in the JSCS. TPH and BTEX are COIs for the site and DEQ requires that they be evaluated using JSCS methods. NPDES testing results may be included in the weight of evidence evaluation but are not sufficient alone to evaluate impact to the river and sediment.

*Our responses to this comment are provided below.*

- *The disputed sentence on page 25 will be deleted.*
  - *TPH. TPH is a bulk conventional parameter with highly variable composition. As a result, there are no reliable federal or state, water or sediment quality criteria for TPH, and no JSCS screening levels. However, we included TPH in our weight of evidence evaluation. TPH was evaluated relative to RBCs in the Upland RI. Time trend analysis of NPDES monitoring results for oil and grease were also evaluated as a surrogate for petroleum compounds. If DEQ requires more work to be done to evaluate TPH, the agency needs to clearly specify what that work entails.*
  - *BTEX. See response to General Comment #3.*
6. Page 29-The list of COIs needs to include phthalates and pesticides. As a policy, DEQ expects all sites to include phthalates in their screening evaluations because of the ubiquitous nature and low level of understanding about potential sources. DDT compounds are elevated in river sediments adjacent to the site and DEQ will need data to support a determination that this site is not an ongoing source of these contaminants.

*See response to General Comment #3 and attached Tables 1A and 1B. MOCC phthalate concentrations are no different than typical urban runoff and are therefore a negligible source. There is no evidence to suggest DDTs or other pesticides were handled at the Site (in fact, the federal DDT ban pre-dates the start up of chemical facility operations at the Site by at least ten years), and no evidence of site-related pesticide contamination in the adjacent river sediments, aside from a subsurface occurrence of DDT next to an abandoned City outfall (LWG Core C413).*

7. Page 32-DEQ does not support the use of site-wide average concentrations in a source control screening evaluation because it could mask localized site sources that could be controlled with SCMs such as improved stormwater best management practices (See General Comment #5).

*See Response to General Comments #6 and #7.*

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8. Table 3-A comparison of site data with upstream and downstream data is not supported by DEQ because of the uncertainty of sediment transport associated with the sample locations. The presence of docks, localized eddies, and sediment movement during ship traffic makes the clear identification of upstream and downstream sample identifications problematic.

*DEQ Stormwater Guidance clearly provides for the spatial evaluation of sediment quality adjacent to stormwater outfalls and on the banks of the Site as a line of evidence regarding the potential for site discharges to cause impacts to the receiving water, and as a means to establish a linkage between site discharges and receiving water impacts. While eddies, structures, and vessel traffic may exert localized effects on sediment depositional patterns, this is not grounds to dismiss the sediment data and the important spatial information contained therein. The following observations are clear:*

- *Sediment concentrations adjacent to MOCC are among the lowest in this one-mile reach of the river over which the spatial comparisons were made. The upstream area includes Shaver Transportation and the downstream area includes the Wilbridge Terminal and outfall.*
- *Several significant sources of contamination are located outside the comparison area – Gunderson, the City Fire Dock, and Arkema. The summary statistics comparing upstream and downstream sediment quality are conservatively low because these sites were excluded. In other words, no extreme “ringer” sites have biased the statistical comparisons.*

9. Table 5 and 6-Aquatic Life Criteria for all phthalates should be 3 ug/L. For water ingestion the screening values that are based on PRGs should be included. The JSCS SLV for arsenic is 0.045 ug/L based on a tap water PRG. The SLVs for carcinogenic PAHs (provided in Table 3.1 of the JSCS) are 0.018 ug/L and for noncarcinogenic the SLV is 0.2 ug/L. Units for Miscellaneous Semi-Volatiles and PCBs should be provided. The JSCS screening value for fish consumption used in the report (17.5 g/day) is out of date. The Portland Harbor SLV for fish consumption should be based on 175 g/day and was adopted by the Oregon Environmental Quality Commission in October 2008. As previously stated, the mean site wide concentration of constituents is not supported by DEQ for the SCE and should be dropped from the table.

*The arsenic tap water PRG will never be realized because it is significantly lower than natural background concentrations derived from Cascade volcanic terranes (DEQ 2002). In such cases, the natural condition supersedes the risk-based criterion, as required by State regulation OAR 340-041-0007(2).*

*The SLVs for carcinogenic PAHs are already listed at 0.018 µg/L in the SCE Report.*

*EPA's proposed SLVs for noncarcinogenic PAHs (as per the JSCS) are based on an inappropriate application of the MCL for benzo(a)pyrene, the most toxic of the carcinogenic PAHs. EPA clearly intended for this MCL to apply specifically to benzo(a)pyrene ([http://www.epa.gov/ogwdw000/contaminants/dw\\_contamfs/benzopyr.html](http://www.epa.gov/ogwdw000/contaminants/dw_contamfs/benzopyr.html)).*

*To apply this standard to noncarcinogenic PAHs is arbitrary.*

*DEQ's proposed use of 3 µg/L for all phthalates appears to be derived from an outdated "water quality guidance value" from 1992 OAR Table 20, which was based on "insufficient data to develop criteria." The best available criteria are the Tier 2 secondary chronic values from Oak Ridge National Laboratories, as listed in DEQ (2001) Level II Ecological SLVs. EPA provides no national recommended chronic aquatic life criteria for phthalates. Regarding bis(2-ethylhexyl)phthalate, EPA notes "There is a full set of aquatic life toxicity data that show DEHP is not toxic to aquatic organisms at or below its solubility limit." (EPA 2009).*

*Regardless of the fish consumption rate that is evaluated, appropriate spatial and temporal averaging needs to be considered in the screening evaluation (see response to General Comments #6 and #7). To compare in-pipe concentrations during a storm event to a 70-year cancer risk based on exposures in the receiving water is contrary to agency guidance and scientifically unjustified.*

10. Table 11-The comparison of site data to screening levels should be made on an individual sample basis not a site wide average. The comparison of data from other contaminated sites is not appropriate for screening because other sites are likely to also be contaminated. The use of background levels for screening is appropriate only if the levels are established and directly applicable to the facility and media. Otherwise the information should only be used in general terms as part of the weight-of-evidence evaluation discussed in DEQ guidance documents.

*Our responses to this comment were addressed in previous responses:*

- *See Response to General Comment #6 and #7.*
- *See response to SC Comment #8.*
- *See response to SC Comment #9*

11. An evaluation of groundwater infiltration to the stormwater system was not preformed. This pathway should be evaluated and discussed.
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*We will perform the requested analysis.*

12. Page 29, Section 5.5-The evaluation of bank soils pathway is not complete. The COIs analyzed for are not sufficient for demonstrating this pathway in not a concern. Several significant COIs are absent from the soil analysis (See General Comment #4). Additional evaluation of this pathway is required.

*See response to General Comments #3 and #4.*

13. Page 30 Section 5-The effectiveness of stormwater SCMs based on the statistical analysis of NPDES data for the past 10 years is not supported. A tabulation of NPDES data including TSS and implementation dates and descriptions of SCMs would better support their effectiveness.

*Least-squares regression analysis of stormwater data with statistical testing of the slope of the regression at 95% confidence level (see SCE Table 8) is an accepted method of analysis for tracking the effectiveness of source control efforts (Helsel and Hirsch, 2002; Gilbert, 1987). If this analysis is "not supported", DEQ needs to provide justification as to why the agency does not find it acceptable, and provide a suitable alternative evaluation procedure.*

*Further information will be provided on the dates of SCM implementation.*

*NPDES data will be compiled in a summary table.*

14. Page 33-DEQ disagrees with the groundwater loading analysis used for arsenic as a screening tool for this contaminant. The mean concentration value used (26 ppm) and saturated thickness (10-feet) are not considered by DEQ to be representative of site conditions. DEQ typically requires screening to be done using the maximum reported concentration or a 90% Upper Confidence Level (UCL) of the mean if applicable data is available. DEQ believes the saturated thickness should be increased to include both fill and alluvial deposits. A more clear understanding of the nature and extent of arsenic groundwater contamination is required to evaluate this pathway.

*This pathway will be reevaluated after further data on nature and extent of arsenic in groundwater has been collected.*

15. Page 33-The potential for TPH contamination to produce reducing conditions which may be mobilizing arsenic into groundwater should be discussed. The evaluation
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should use the JSCS guidance to develop a conceptual site model and determine if SCMs shall be considered.

*This pathway will be reevaluated after further data on nature and extent of arsenic in groundwater has been collected.*

#### Next Steps

Representatives from McCall Oil and DEQ should meet to discuss these issues and their resolution. In summary, DEQ believes that the following information should be considered to allow completion of a SCD for the site:

- COIs List

DEQ requests that the following list of constituents should be considered in future site screenings for all pathways: TPH, BTEX, Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Zinc), Organochlorine Pesticides, PCBs, PAHs, Chlorinated Volatiles, and Semi-Volatiles (including SLV listed Phthalates). Ensure the laboratory is directed to use sample cleanup methods. This can help ensure that matrix interferences do not result in MRLs greater than appropriate JSCS SLVs. Reporting of PCBs should include both total PCBs and individual aroclors. Laboratory PCB detection limits for comparison to SLVs should be less than 10-20 ppb for soil/sediments and less than 0.05 ppb for stormwater. A COIs table should be developed that includes the COIs laboratory method reporting limits compared to SLVs.

The exclusion of specific testing for pathway specific COIs needs to be reviewed and approved by DEQ.

*See response to General Comments #2 and #3.*

*Existing PCB analyses for catch basin sediments have already achieved the required detection limits.*

*PCBs in stormwater were analyzed using standard methods with a reporting limit of 0.2 ppb. While the DEQ guidance specifies a reporting limit of 0.05 ppb, our work was conducted before this guidance was issued. Because of their inherent hydrophobicity, storm sediment is a much better medium in which to evaluate PCB sources.*

- Stormwater Drainage Map Development

As part of the SCE, more detailed maps should be produced with outlines of each drainage basin/sub basin using arrows to indicate the direction of stormwater flow. Use colors and/or

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shading to differentiate drainage areas and pervious/impervious surfaces. The new maps should contain the existing storm water configuration and also depict any recent or planned changes to the system (e.g., closures of inlets or changes in stormwater management). An evaluation of potential PCB sources should be provided for each drainage basin along with an evaluation of stormwater flow patterns to determine catch and catch basin soil sample point selections.

*A Stormwater Map will be provided with the requested features, with the exception of the following:*

- *There is no evidence of any PCB sources on site, based on the knowledge of site history and operations, as well as chemical analysis of stormwater, storm sediment, and river sediment samples on and adjacent to the site.*

- **Stormwater Sediment and Surficial Soil Sampling**

Due to the detections of PCBs in stormwater sediment additional sampling of stormwater solids and surficial soil is required. Stormwater solids and surficial soils including river bank surficial soil sampling points should be selected to evaluate previous PCB detections and address other site COIs data gaps. Sediment samples should include all COIs in addition to PCBs. An erodible soil evaluation work plan for the river bank and stormwater sediment sampling should be developed and submitted for DEQ approval.

*PCBs in MOCC storm sediments are no different than average urban runoff from light industrial, mixed land use, and even residential areas. These results underscore the fact that there are no developed urban drainages, including residential areas, that would likely pass DEQ's SLVs, many of which are based on an unreasonable application of water quality criteria to inappropriate media or exposure conditions. There is already sufficient existing data to dismiss PCBs from further consideration at this Site.*

- **Stormwater Sampling**

A minimum of two stormwater sampling events should be performed (minimum of one first flush and one representative storm event) for locations S-1 through S-4. Stormwater samples should be analyzed for the full COIs list. Additional stormwater sampling locations may be required based on the results of the stormwater sediment sample screenings and stormwater map development. Stormwater sampling locations should be approved by DEQ.

*DEQ Stormwater Guidance recommends sampling one round of catch basin sediments and four rounds of stormwater. MOCC has already sampled 4 to 5 rounds of stormwater and 2 to 3 rounds of catch basin sediment. No significant source control issues have emerged during*

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*these sampling activities. Further sampling above and beyond the recommended level of effort in DEQ Guidance is therefore unwarranted.*

- Perform an Evaluation of Groundwater Infiltration to Stormwater System and Utilities.
- Evaluate Groundwater Pathway for Arsenic and TPH

Evaluate the groundwater pathway for arsenic and TPH to determine what additional information is required. Groundwater sampled from shoreline monitoring wells EX-2 and EX-3 had maximum detections of dissolved arsenic at 72 ppb and 90 ppb respectively. It is unclear what is causing these exceedences. These arsenic detections significantly exceed screening values and DEQ considers these detections to be a potential groundwater hotspot. However, the arsenic detection is based on only two sampling events and additional groundwater sampling should be considered for the evaluation. The evaluation should use the JSCS screening guidance to completely develop a conceptual site model and determine if SCMs need to be considered.

*This pathway will be reevaluated after further data on nature and extent of arsenic in groundwater has been collected.*

The relationship between TPH and associated reducing conditions that may be mobilizing dissolved arsenic should be evaluated. The Portland Harbor TPH SLV for groundwater to the surface water pathway is 1 ppm.

*This pathway will be reevaluated after further data on nature and extent of arsenic in groundwater has been collected.*

- RI and SCE Reports

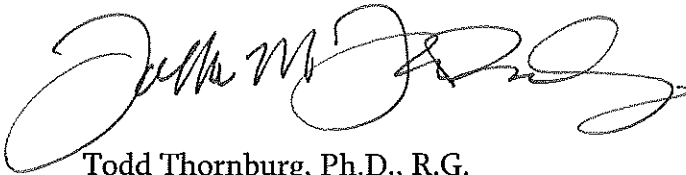
The RI and SCE evaluation reports should be resubmitted after the additional site screening is completed. Work plans for additional site screening should be developed and SCMs should be implemented, if needed.

*The scope of the revisions to the RI and SCE reports will be determined after further discussion with DEQ.*

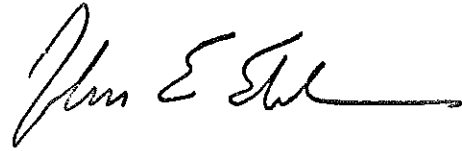
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After you have a chance to review our responses to DEQ's comments, please contact us to set up a meeting to discuss the path forward to finalizing the RI and SCE reports and proceeding to a Source Control Decision for this Site. If you have any questions during your review of our comment responses, or require further clarification of any issues, please don't hesitate to contact either one of us at 503-670-1108.

Sincerely,



Todd Thornburg, Ph.D., R.G.  
Anchor QEA, LLC



John Edwards, C.E.G.

Cc: Ted McCall, McCall Oil and Chemical Corporation

Attachments:

Table 1A. Comparison of MOCC Stormwater with Other Portland Harbor Land Use Sites

Table 1B. Comparison of MOCC Catch Basin Sediment with Other Portland Harbor Land  
Use Sites

# DRAFT

**Table 1A.**  
**Comparison of McCall Oil and Chemical Site Stormwater**  
**with Other Portland Harbor Land Use Sites<sup>[1]</sup>**

	Stormwater Summary				
	N	Minimum	Mean (half DL)	95th%-tile (half DL)	Maximum
JSCS SLV = 0.0000064 µg/L					
<b>Total PCB Aroclors (ug/L)</b>					
MOCC Site	7	<0.20	<0.20	<0.20	<0.20
Heavy Industrial	24	0.01	0.08	0.20	0.38
Light Industrial	5	0.02	0.09	0.16	0.18
Transportation	—	—	—	—	—
Mixed Land Use	—	—	—	—	—
Residential	3	0.03	0.09	0.17	0.18
<b>Total PCB Congeners (ug/L)</b>					
MOCC Site	—	—	—	—	—
Heavy Industrial	85	0.00	0.36	1.16	11.60
Light Industrial	19	0.00	0.07	0.39	0.59
Transportation	11	0.01	0.05	0.14	0.19
Mixed Land Use	12	0.01	0.08	0.30	0.50
Residential	6	0.00	0.04	0.12	0.13
JSCS SLV = 0.22 µg/L					
<b>Bis(2-ethylhexyl) Phth. (ug/L)</b>					
MOCC Site	7	0.9	1.8	5.4	6.7
Heavy Industrial	48	0.2	2.1	8.0	10.0
Light Industrial	14	1.0	1.9	4.1	4.2
Transportation	4	2.6	10.0	16.1	17.0
Mixed Land Use	4	1.8	5.0	8.4	8.9
Residential	6	1.0	3.8	6.5	6.7

Notes:

[1] from Lower Willamette Group, 2009. Draft Remedial Investigation Report, Table 4.4-1, October 27, 2009.

# DRAFT

Table 1B.

## Comparison of McCall Oil and Chemical Site Catch Basin Sediment with Other Portland Harbor Land Use Sites<sup>[1]</sup>

	Storm Sediment Summary				
	N	Minimum	Mean (half DL)	95th%-tile (half DL)	Maximum
JSCS SLV = 0.39 µg/kg					
<b>Total PCB Aroclors (ug/kg)</b>					
MOCC Site	3	30	100	142	144
Heavy Industrial	2	390	680	941	970
Light Industrial	1	—	1,000	—	—
Transportation	—	—	—	—	—
Mixed Land Use	—	—	—	—	—
Residential	1	—	400	—	—
<b>Total PCB Congeners (ug/kg)</b>					
MOCC Site	—	—	—	—	—
Heavy Industrial	24	48	977	2,600	9,900
Light Industrial	2	264	463	641	661
Transportation	3	125	163	215	223
Mixed Land Use	7	75	232	578	696
Residential	2	67	222	361	377
JSCS SLV = 330 µg/kg ?					
<b>Bis(2-ethylhexyl) Phth. (ug/kg)</b>					
MOCC Site	3	8,700	9,900	11,700	12,000
Heavy Industrial	14	280	27,200	101,000	120,000
Light Industrial	2	17,000	22,500	27,500	28,000
Transportation	2	19,000	29,000	38,000	39,000
Mixed Land Use	6	890	9,830	25,300	27,000
Residential	1		8,200	—	

Notes:

[1] from Lower Willamette Group, 2009. Draft Remedial Investigation Report, Table 4.4-1, October 27, 2009.